IN THE CLAIMS:

1. (currently amended) A modified nucleotide ~~or nucleoside~~ molecule comprising a purine or pyrimidine base and a ribose or deoxyribose sugar moiety having a removable 3'-OH blocking group covalently attached thereto, such that the 3' carbon atom has attached a group of the structure

-O-Z

wherein Z is any of $-C(R^{IV})_2-O-R"$, $-C(R')_2-N(R")_2$, $-C(R')_2-N(H)R"$, $-C(R^{IV})_2-S-R"$ and [~~$-C(R')_2-F$~~] $-C(R')_2-N_3$,

wherein $-C(R^{IV})_2-O-R"$ is of the formula $-CR^4(R^5)-O-CR^4(R^5)-OR^6$ or of the formula $-CR^4(R^5)-O-CR^4(R^5)-SR^6$; and wherein $-C(R^{IV})_2-S-R"$ is of the formula $-CR^4(R^5)-S-CR^4(R^5)-OR^6$ or of the formula $-CR^4(R^5)-S-CR^4(R^5)-SR^6$;

wherein each R" is or is part of a removable protecting group;

each R' is independently a hydrogen atom, an alkyl, substituted alkyl, arylalkyl, alkenyl, alkynyl, aryl, heteroaryl, heterocyclic, acyl, cyano, alkoxy, aryloxy, heteroaryloxy or amido group, or a detectable label attached through a linking group; or $(R')_2$ represents an alkylidene group of formula $=C(R''')_2$ wherein each R''' may be the same or different and is selected from the group comprising hydrogen and halogen atoms and alkyl groups;

each R^4 and R^5 is independently a hydrogen atom or an alkyl group;

R^6 is alkyl, cycloalkyl, alkenyl, cycloalkenyl or benzyl; and

wherein said molecule may be reacted to yield an intermediate in which each R" is exchanged for H ~~or, where Z is $-C(R')_2-F$, the F is exchanged for OH, SH or NH_2, preferably OH~~, which intermediate dissociates under aqueous conditions to afford a molecule with a free 3'OH; with the proviso that where Z is $-C(R^{IV})_2-S-R"$, both R^{IV} groups are not H.

2. (original) A molecule according to claim 1 wherein R' is an alkyl or substituted

alkyl.

3. (cancelled)

4. (previously presented) A molecule according to claim 1 wherein Z is an azidomethyl group.

5. (previously presented) A molecule according to claim 1 wherein R" is a benzyl or substituted benzyl group.

6. (previously presented) A molecule according to claim 1 wherein said base is linked to a detectable label via a cleavable linker or a non-cleavable linker.

7. (original) A molecule according to claim 6 wherein said linker is cleavable.

8. (previously presented) A molecule according to claim 1 wherein a detectable label is linked to the molecule through the blocking group by a cleavable or non-cleavable linker.

9. (previously presented) A molecule according to claim 6 wherein said detectable label is a fluorophore.

10. (previously presented) A molecule according to claim 6 wherein said linker is acid labile, photolabile or contains a disulfide linkage.

11. (previously presented) A modified nucleotide molecule as claimed in claim 1 which comprises one or more ^{32}P atoms in its phosphate portion.

12-28. (cancelled)

29. (currently amended) A method of controlling the incorporation of a nucleotide as defined in claim 6 and complementary to a second nucleotide in a target single-stranded polynucleotide in a synthesis or sequencing reaction comprising incorporating into the growing complementary polynucleotide said nucleotide, the incorporation of said nucleotide preventing or blocking introduction of subsequent ~~nucleoside or~~ nucleotide molecules into said growing complementary polynucleotide.

30. (original) The method of claim 29, wherein the incorporation of said nucleotide is accomplished by a terminal transferase or polymerase or a reverse transcriptase.

31. (original) The method of claim 30 wherein the polymerase is a *Thermococcus sp.*

32. (original) The method of claim 31 wherein the *Thermococcus sp* is 9°N or a single mutant or double mutant thereof.

33. (original) The method of claim 32 wherein the double mutant is -Y409V A485L.

34-45. (cancelled)

46. (previously presented) A kit, comprising:

(a) a plurality of different nucleotides wherein said plurality of different nucleotides are as defined in claim 6; and

(b) packaging materials therefor.

47. (original) A kit according to claim 46, wherein the detectable label in each nucleotide can be distinguished upon detection from the detectable label used for any of the other three types of nucleotide.

48. (previously presented) The kit of claim 46, further comprising an enzyme and buffers appropriate for the action of the enzyme.

49-55. (cancelled)